

REMARKS

Claims 1-6 have been examined on their merits.

Applicants herein add new claims 7 and 8. New claims 7 and 8 are supported by the originally filed application, and do not add any new matter. Entry and consideration of the new claims 7 and 8 is respectfully requested.

Applicants herein amend claims 1 and 6 to recite the transfer characteristic of the demultiplexers and multiplexers. Applicants further amend claims 1 and 6 to recite that the numbers m and p must be mutually prime. In the February 24, 2004 Advisory Action, the Examiner claimed that the February 9, 2004 Rule 116 Amendment introduced new matter by amending claims 1 and 6 to recite that the numbers m and p are “always mutually prime.” Applicants fail to see the difference between “always” and “must” and Applicants’ position is borne out by simple consultation of an English-language dictionary. *See, e.g., The American Heritage Dictionary of the English Language*, Houghton Mifflin Co. (1981). However, in order to advance the prosecution of the instant application, Applicants herein amend claims 1 and 6 to recite that the numbers m and p must be mutually prime.

Claims 1-8 are all the claims presently pending in the application.

1. Claims 1-6 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Miyachi *et al.* (EP 1 043 859). Applicants traverse the rejection of claims 1-6, and insofar as the new rejection applies to new claims 7 and 8, for at least the reasons discussed below.

To support a conclusion that a claimed invention lacks novelty under 35 U.S.C. § 102, a single source must teach all of the elements of a claim. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379 (Fed. Cir. 1986). A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). A single source must disclose all of the claimed elements arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. Thus, the cited reference must clearly and unequivocally disclose every element and limitation of the claimed invention.

With respect to claim 1, Miyachi *et al.* do not teach or suggest an optical demultiplexing system for demultiplexing a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, wherein each interleaved band is demultiplexed by a 1-to- p deinterleaving demultiplexer having a periodic transfer function and the numbers m and p must be mutually prime. Although Applicants understand the Examiner's argument with respect to Miyachi *et al.*, Applicants again point out that, if the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are not mutually prime, then the demultiplexing is not possible. See page 8, lines 7-12 of the Applicants' disclosure. Miyachi *et al.* certainly discloses that it is entirely possible that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are equal to each other ("FIG. 14 shows an example in which $M=4$ and $K=4$." See

paragraph [0097] of Miyachi *et al.*).¹ In Miyachi *et al.*'s disclosure with respect to the first and second optical demultiplexers (113, 114) in Figure 13, there is absolutely no disclosure with respect to the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime.

Furthermore, the Examiner is precluded from making an inherency argument, since the Examiner has not presented any evidence that the mutually prime requirement is a characteristic that is necessarily present in Miyachi *et al.* In contrast, the only disclosure in Miyachi *et al.* is that of the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band are equal to each other. No mention is made of the mutually prime requirement, and Miyachi *et al.* completely lacks any discussion or disclosure regarding the criticality of the mutually prime requirement.

Finally, Miyachi *et al.* lack any disclosure with respect to the periodic transfer function of the 1-to-*p* deinterleaving demultiplexer. In the August 1, 2003 Office Action, the Examiner stated that the demultiplexers of Miyachi *et al.* would "inherently be periodic" without providing any factual basis or support for such an assertion. The fact that a certain element **might** be present in the prior art is **not** sufficient to establish the inherency of that element. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82 (CCPA 1981). "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by

¹ Although the Examiner asserts that M and K would inherently differ, Miyachi *et al.* explicitly state that M and K are equal to each other.

persons of ordinary skill. Probabilities or possibilities, however, may not establish inherency. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999); MPEP§ 2112. “In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original); MPEP§ 2112. The Examiner has not provided any basis in fact that the allegedly inherent characteristic (*i.e.*, demultiplexers have a periodic transfer function) *necessarily* flows from the teachings of Miyachi *et al.* Applicants’ own discussion of prior art systems clearly illustrates that simple bandpass filters can be used for demultiplexers. *See* Figure 2, page 4, lines 25-29 of Applicants’ written disclosure. Moreover, the disclosure of Miyachi *et al.* seems to imply that bandpass filters are used for the second optical demultiplexing, and not periodic filters. *See* para. [0099] of Miyachi *et al.*

Based on the foregoing reasons, Applicants submit that Miyachi *et al.* fail to disclose all of the claimed elements as arranged in claim 1. Therefore, under *Hybritech* and *Richardson*, Miyachi *et al.* clearly cannot anticipate the present invention as recited in independent claim 1. Thus, Applicants submit that claim 1 is allowable, and further submit that claims 2-5 and new claims 7-8 are allowable as well, at least by virtue of their dependency from claim 1. Applicants respectfully request that the Examiner withdraw the § 102(e) rejection of claims 1-5.

With respect to claim 6, Miyachi *et al.* do not teach or suggest an optical multiplexing system for creating a multiplexed signal consisting of m interleaved bands of wavelengths,

wherein each interleaved band consists of p wavelengths, interleaving multiplexers having a periodic transfer function create each interleaved band and the numbers m and p must be mutually prime. Again, the Examiner argues that the teaching of the mutually prime numbers m and p is allegedly inherent in the disclosure of Miyachi *et al.* Similar to the above discussion with respect to claim 1, Miyachi *et al.* lack any disclosure that the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band must be mutually prime. Similar to the above discussion with respect to claim 1, Miyachi *et al.* lack any disclosure with respect to the periodicity of the interleaving multiplexers for interleaving each group of wavelengths into a band.

Based on the foregoing reasons, Applicants submit that Miyachi *et al.* fail to disclose all of the claimed elements as arranged in claim 6. Therefore, under *Hybritech* and *Richardson*, Miyachi *et al.* clearly cannot anticipate the present invention as recited in independent claim 6. Thus, Applicants submit that claim 6 is allowable. Applicants respectfully request that the Examiner withdraw the § 102(e) rejection of claim 6.

3. Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Miyachi *et al.* (EP 1 043 859). Applicants traverse the rejection of claims 1-6, and insofar as the rejection applies to new claims 7 and 8, at least for the reasons set forth below.

The initial burden of establishing that a claimed invention is *prima facie* obvious rests on the USPTO. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). To make its *prima facie* case of obviousness, the USPTO must satisfy three requirements:

- a) The prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated to artisan to modify a reference or to combine references. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).
- b) The proposed modification of the prior art must have had a reasonable expectation of success, and that determined from the vantage point of the artisan at the time the invention was made. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209 (Fed. Cir. 1991).
- c) The prior art reference or combination of references must teach or suggest all the limitations of the claims. *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991); *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, the nature of a problem to be solved. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Alternatively, the motivation may be implicit from the prior art as a whole, rather than expressly stated. *Id.* Regardless if the USPTO relies on an express or an implicit showing of motivation, the USPTO is obligated to provide particular findings related to its conclusion, and those findings must be clear and particular. *Id.* A broad conclusionary statement, standing alone without support, is not “evidence.” *Id.*; *see also, In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001).

In addition, a rejection cannot be predicated on the mere identification of individual components of claimed limitations. *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). Rather,

particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *Id.*

With respect to claim 1, Miyachi *et al.* do not teach or suggest an optical demultiplexing system for demultiplexing a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band is demultiplexed by a 1-to- p deinterleaving demultiplexer having a periodic transfer function and the numbers m and p must be mutually prime. As discussed above with respect to the 35 U.S.C. § 102(e) rejection, Miyachi *et al.* fails to teach or suggest that the numbers m and p must be mutually prime for proper demultiplexing; otherwise, wavelengths will be missed. *See* page 8, lines 7-12; page 9, lines 7-9 of the Applicants' disclosure. Miyachi *et al.* neither disclose nor contemplate such a feature. As discussed above with respect to the 35 U.S.C. § 102(e) rejection, Miyachi *et al.* do not teach or suggest the use of deinterleaving filters with periodic transfer functions. The Examiner has also not provided any evidence that the deinterleaving filters would "inherently" have a periodic transfer function. Thus, Applicants submit that the Examiner cannot fulfill the "all limitations" prong of a *prima facie* case of obviousness, as required by *In re Vaeck*.

Since Miyachi *et al.* fail to disclose an optical demultiplexing system for demultiplexing a multiplexed signal as recited in claim 1, Applicants submit that one of ordinary skill in the art would not be motivated to modify the reference. *In re Dembiczak* and *In re Zurko* require the Examiner to provide particularized facts on the record as to why one of skill would be motivated to modify a reference. Without a motivation to modify, a rejection based on a *prima facie* case

of obviousness is improper. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)). The level of skill in the art cannot be relied upon to provide the suggestion to modify a reference. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999). The Examiner must make specific factual findings with respect to the motivation to modify a reference. *In re Lee*, 277 F.3d 1338, 1342-44 (Fed. Cir. 2002). The Examiner has not provided a motivation analysis, and Miyachi *et al.* lack any teaching about the desirability of an optical demultiplexing system for demultiplexing a multiplexed signal, wherein the number of bands and the number of wavelengths comprising the bands must be mutually prime numbers and deinterleaving filters with periodic transfer functions are used. Applicants submit that the Examiner cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*.

Based on the foregoing reasons, Applicants submit that Miyachi *et al.* fail to disclose all of the claimed elements as arranged in claim 1. Therefore, Miyachi *et al.* clearly cannot render the present invention obvious as recited in claim 1. Thus, Applicants submit that claim 1 is allowable, and further submit that claims 2-5 and new claims 7 and 8 are allowable as well, at least by virtue of their dependency from claim 1. Applicants respectfully request that the Examiner withdraw the § 103(a) rejection of claims 1-5.

With respect to claim 6, Miyachi *et al.* do not teach or suggest an optical multiplexing system for creating a multiplexed signal consisting of m interleaved bands of wavelengths, wherein each interleaved band consists of p wavelengths, interleaving multiplexers having a periodic transfer function create each interleaved band and the numbers m and p must be

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mutually prime. Similar to the above discussion with respect to claim 1, Miyachi *et al.* lack any disclosure with respect to the number of interleaved bands of wavelengths and the number of wavelengths in each interleaved band being mutually prime, nor is there any teaching or suggestion regarding the interleaving multiplexers having a periodic transfer function create each interleaved band. The Examiner has also not provided any evidence that the interleaving multiplexers would “inherently” have a periodic transfer function. Applicants submit that the Examiner cannot fulfill the “all limitations” prong of a *prima facie* case of obviousness, as required by *In re Vaeck*. Moreover, the Examiner has not provided any analysis as to why one of skill in the art would be motivated to modify Miyachi *et al.* Therefore, Applicants submit that the Examiner cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*. Thus, Applicants submit that claim 6 is allowable, and respectfully request that the Examiner withdraw the § 103(a) rejection of claim 6.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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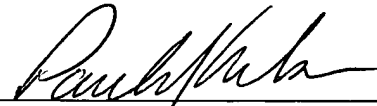
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